

IN THE CLAIMS

Cancel claims 1, 2, 12, 13, 23, 24, 34-47, 49, 52, 53, 57, 58, 59 and 60.

1. (Cancelled).

2. (Cancelled).

3. (Currently Amended) ~~The system as recited in claim 1,~~ A system for processing operations that use data vectors each comprising a plurality of data elements comprising:
_____ a vector data file comprising a plurality of storage elements for storing data elements of the data vectors;
_____ a pointer array coupled by a bus to the vector data file, the pointer array including a plurality of entries wherein each entry identifies at least one storage element in the vector data file;
_____ the at least one storage element for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file; and
wherein the pointer array includes at least one entry which is updated based on data read out from at least one data element in the vector data file.

4. (Currently Amended) ~~The system as recited in claim 1,~~ A system for processing operations that use data vectors each comprising a plurality of data elements comprising:
a vector data file comprising a plurality of storage elements for storing data elements of the data vectors;
a pointer array coupled by a bus to the vector data file, the pointer array including a plurality of entries wherein each entry identifies at least one storage element in the vector data file;
the at least one storage element for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file; and
wherein the pointer array includes at least one entry which is updated based on data generated by incrementing data read from at least one entry of the pointer array.

5. (Currently Amended) ~~The system as recited in claim 1,~~ A system for processing operations that use data vectors each comprising a plurality of data elements comprising:
a vector data file comprising a plurality of storage elements for storing data elements of the data vectors;
a pointer array coupled by a bus to the vector data file, the pointer array including a plurality of entries wherein each entry identifies at least one storage element in the vector data file;

the at least one storage element for storing at least one data element of the data vectors,
wherein for at least one particular entry in the pointer array, the at least one storage element
identified by the particular entry has an arbitrary starting address in the vector data file; and
wherein the pointer array includes at least one entry which is updated based on data generated by
performing an increment operation on data read from at least one entry of the pointer array.

6. (Original) The system as recited in claim 5, wherein the pointer array includes at least two entries which are updated as part of a same logical operation.

7. (Original) The system as recited in claim 5, wherein the increment operation includes at least one of a modulo operation and a stride operation.

8. (Currently Amended) The system as recited in claim 13, wherein each entry of the pointer array includes a starting address of at least one storage element in the vector data file.

9. (Currently Amended) ~~The system as recited in claim 1~~ A system for processing operations that use data vectors each comprising a plurality of data elements comprising:
a vector data file comprising a plurality of storage elements for storing data elements of
the data vectors;

a pointer array coupled by a bus to the vector data file, the pointer array including a plurality of entries wherein each entry identifies at least one storage element in the vector data file;

the at least one storage element for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file; and wherein the storage elements of the vector data file are logically organized in a matrix of rows and columns, and wherein each entry of the pointer array includes an address representing the row and column of at least one element in the vector data file.

10. (Currently Amended) ~~The system as recited in claim 1,~~ A system for processing operations that use data vectors each comprising a plurality of data elements comprising:

a vector data file comprising a plurality of storage elements for storing data elements of the data vectors;

a pointer array coupled by a bus to the vector data file, the pointer array including a plurality of entries wherein each entry identifies at least one storage element in the vector data file;

the at least one storage element for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file; and

wherein the storage elements of the vector file data are logically organized in a matrix of rows and columns, and wherein each array of the pointer array includes an address representing the row and column of a single element in the vector data file.

11. (Currently Amended) ~~The system as recited in claim 1,~~ A system for processing operations that use data vectors each comprising a plurality of data elements comprising:

a vector data file comprising a plurality of storage elements for storing data elements of the data vectors;

a pointer array coupled by a bus to the vector data file, the pointer array including a plurality of entries wherein each entry identifies at least one storage element in the vector data file;

the at least one storage element for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file; and

wherein, for any given entry in the pointer array, the at least one storage element identified by the any given entry is independent with respect to the at least one storage element identified by other entries of the pointer array.

12. (Cancelled)

13. (Cancelled)

14. (Currently Amended) ~~The method as recited in claim 12, further comprising the step of:~~

A method for processing operations that use data vectors each comprising a plurality of data elements, the method comprising the steps of:

providing a vector data file comprising a plurality of storage elements for storing data elements of the data vectors, and

providing a pointer array having a plurality of entries, wherein each entry identifies at least one storage element in the vector data file for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file;
and

updating at least one of the entries of the pointer array based on data read out from at least one data element in the vector data file.

15. (Currently Amended) The method as recited in claim ~~12~~14, further comprising the step of:

A method for processing operations that use data vectors each comprising a plurality of data elements, the method comprising the steps of:

providing a vector data file comprising a plurality of storage elements for storing data elements of the data vectors, and

providing a pointer array having a plurality of entries, wherein each entry identifies at least one storage element in the vector data file for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file;
and

updating at least one of the entries of the pointer array based on data read out from data generated by incrementing data read from at least one entry of the pointer array.

16. (Currently Amended) The method as recited in claim ~~12~~14, further comprising the step of:

a method for processing operations that use data vectors each comprising a plurality of data elements, the method comprising the steps of:

providing a vector data file comprising a plurality of storage elements for storing data elements of the data vectors, and

providing a pointer array having a plurality of entries, wherein each entry identifies at least one storage element in the vector data file for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file;
and

updating at least one of the entries of the pointer array based on data generated by performing an increment operation on data read from at least one entry of the pointer array.

17. (Original) The method as recited in claim 16, wherein at least two entries of the pointer array are updated as part of a same logical operation.

18. (Original) The method as recited in claim 16, wherein the increment operation further includes at least one of a modulo operation and a stride operation on data read from at least one entry of the pointer array.

19. (Currently Amended) The method as recited in claim ~~12~~14, wherein each entry of the pointer array stores a starting address of at least one storage element in the vector data file.

20. (Currently Amended) ~~The method as recited in claim 12, A method for processing operations that use data vectors each comprising a plurality of data elements, the method comprising the steps of:~~

providing a vector data file comprising a plurality of storage elements for storing data elements of the data vectors, and

providing a pointer array having a plurality of entries, wherein each entry identifies at least one storage element in the vector data file for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file;
and

wherein the storage elements of the vector data file are logically organized in a matrix of rows and columns, and wherein each entry of the pointer array stores an address representing the row and column of at least one element in the vector data file.

21. (Currently Amended) ~~The method as recited in claim 12,~~ A method for processing operations that use data vectors each comprising a plurality of data elements, the method comprising the steps of:

providing a vector data file comprising a plurality of storage elements for storing data elements of the data vectors, and

providing a pointer array having a plurality of entries, wherein each entry identifies at least one storage element in the vector data file for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file;
and

wherein the storage elements of the vector file data are logically organized in a matrix of rows and columns, and wherein each array of the pointer array stores an address representing the row and column of a single element in the vector data file.

22. (Currently Amended) ~~The method as recited in claim 12,~~

A method for processing operations that use data vectors each comprising a plurality of data elements, the method comprising the steps of:

providing a vector data file comprising a plurality of storage elements for storing data elements of the data vectors, and

providing a pointer array having a plurality of entries, wherein each entry identifies at least one storage element in the vector data file for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file;
and

wherein, for any given entry in the pointer array, the at least one storage element identified by the any given entry is independent with respect to the at least one storage element identified by other entries of the pointer array.

23. (Cancelled).

24. (Cancelled).

25. (Currently Amended) ~~The program storage device as recited in claim 23, further comprising the step of:~~

A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for processing operations that use data vectors each comprising a plurality of data elements, the method steps comprising:
_____ providing a vector data file comprising a plurality of storage elements for storing data elements of the data vectors, and
_____ providing a pointer array having a plurality of entries, wherein each entry identifies at least one storage element in the vector data file for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file;
and

updating at least one of the entries of the pointer array based on data read out from at least one data element in the vector data file.

26. (Currently Amended) ~~The program storage device as recited in claim 23, further comprising the step of:~~

A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for processing operations that use data vectors each comprising a plurality of data elements, the method steps comprising:
_____ providing a vector data file comprising a plurality of storage elements for storing data elements of the data vectors, and

providing a pointer array having a plurality of entries, wherein each entry identifies at least one storage element in the vector data file for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file;
and

updating at least one of the entries of the pointer array based on data read out from data generated by incrementing data read from at least one entry of the pointer array.

27. (Currently Amended) ~~The program storage device as recited in claim 23, further comprising the step of:~~

A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for processing operations that use data vectors each comprising a plurality of data elements, the method steps comprising:
providing a vector data file comprising a plurality of storage elements for storing data elements of the data vectors, and

providing a pointer array having a plurality of entries, wherein each entry identifies at least one storage element in the vector data file for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file;
and

updating at least one of the entries of the pointer array based on data generated by performing an increment operation on data read from at least one entry of the pointer array.

28. (Original) The program storage device as recited in claim 27, wherein at least two entries of the pointer array are updated as part of a same logical operation.

29. (Original) The program storage device as recited in claim 27, wherein the increment operation further includes at least one of a modulo operation and a stride operation on data read from at least one entry of the pointer array.

30. (Currently Amended) The program storage device as recited in claim ~~23~~26, wherein each entry of the pointer array stores a starting address of at least one storage element in the vector data file.

31. (Currently Amended) ~~The program storage device as recited in claim 23,~~ A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for processing operations that use data vectors each comprising a plurality of data elements, the method steps comprising:
providing a vector data file comprising a plurality of storage elements for storing data elements of the data vectors, and

providing a pointer array having a plurality of entries, wherein each entry identifies at least one storage element in the vector data file for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file,

wherein the storage elements of the vector data file are logically organized in a matrix of rows and columns, and wherein each entry of the pointer array stores an address representing the row and column of at least one element in the vector data file.

32. (Currently Amended) ~~The program storage device as recited in claim 23,~~

A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for processing operations that use data vectors each comprising a plurality of data elements, the method steps comprising:

providing a vector data file comprising a plurality of storage elements for storing data elements of the data vectors,

providing a pointer array having a plurality of entries, wherein each entry identifies at least one storage element in the vector data file for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file;
and

wherein the storage elements of the vector file data are logically organized in a matrix of rows and columns, and wherein each array of the pointer array stores an address representing the row and column of a single element in the vector data file.

33. (Currently Amended) ~~The program storage device as recited in claim 23,~~

A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for processing operations that use data vectors each comprising a plurality of data elements, the method steps comprising:
providing a vector data file comprising a plurality of storage elements for storing data elements of the data vectors,

providing a pointer array having a plurality of entries, wherein each entry identifies at least one storage element in the vector data file for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file;
and

wherein, for any given entry in the pointer array, the at least one storage element identified by the any given entry is independent with respect to the at least one storage element identified by other entries of the pointer array.

34. (Cancelled)

35. (Cancelled)

36. (Cancelled)

37. (Cancelled)

38. (Cancelled)

39. (Cancelled)

40. (Cancelled)

41. (Cancelled)

42. (Cancelled)

43. (Cancelled)

44. (Cancelled)

45. (Cancelled)

46. (Cancelled)

47. (Cancelled)

48. (Currently Amended) A system for facilitating processing of vectors, comprising:
a vector memory area; ~~and~~
a controller for performing a specified operation on arbitrary portions of a vector stored in
the vector memory area;
a pointer memory area containing address information identifying the portions of the
vector to access;
wherein the address information stored in the pointer memory area comprises a plurality
of pointers pointing to a portion of the vector memory area;
wherein the plurality of pointers are stored in the pointer memory area as a pointer array;
and
wherein the pointer array is organized in a matrix of rows and columns.

49. (Cancelled)

50. (Original) The system of claim 48, wherein the address information is loaded into
the pointer memory area by a program instruction.

51. (Original) The system of claim 50, wherein the program instruction is a load instruction (VPTRLOAD).

52. (Cancelled).

53. (Cancelled)

54. (Currently Amended) ~~The system of claim 53,~~ A system for facilitating processing of vectors, comprising:

- a vector memory area; ~~and~~
- a controller for performing a specified operation on arbitrary portions of a vector stored in the vector memory area;
- a pointer memory area containing address information identifying the portions of the vector to access;
- wherein the address information stored in the pointer memory area comprises a plurality of pointers pointing to a portion of the vector memory area;
- wherein the plurality of pointers are stored in the pointer memory area as a pointer array;
- and
- wherein each entry of the pointer array includes an address representing the row and column of at least one element in the vector memory area;

55. (Original) The system of claim 48, wherein the vector memory area is organized in a matrix of rows and columns.

56. (Original) The system of claim 48, wherein the vector memory area is organized in a linear array.

57. (Cancelled)

58. (Cancelled)

59. (Cancelled)

60. (Cancelled)

REMARKS

Claims 1-60 are pending. Claims 1, 2, 8, 12, 13, 19, 23, 24, 30 34-53, 55, 56 and 58-60 are rejected. Claims 3-7, 9-11, 14-18, 20-22, 25-29, 31-33, 54 and 57 are objected to, but would be allowable if the claims are rewritten in independent form including all of the limitations of the base claims and intervening claims.